CALIFORNIA OIL WORLD

PT. 5, 1935

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XXVIII, No. 7

No. 1411

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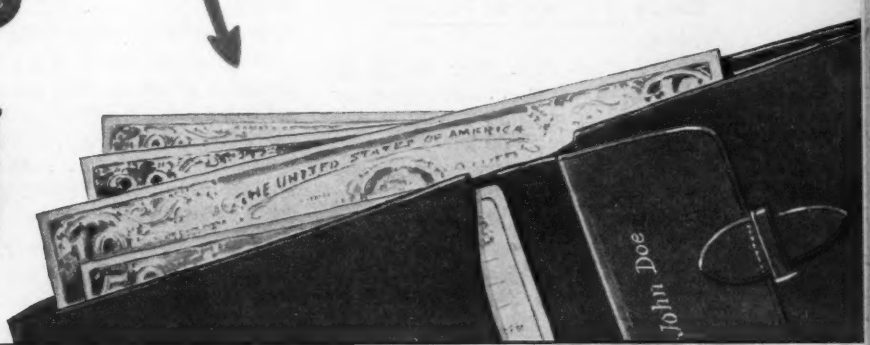

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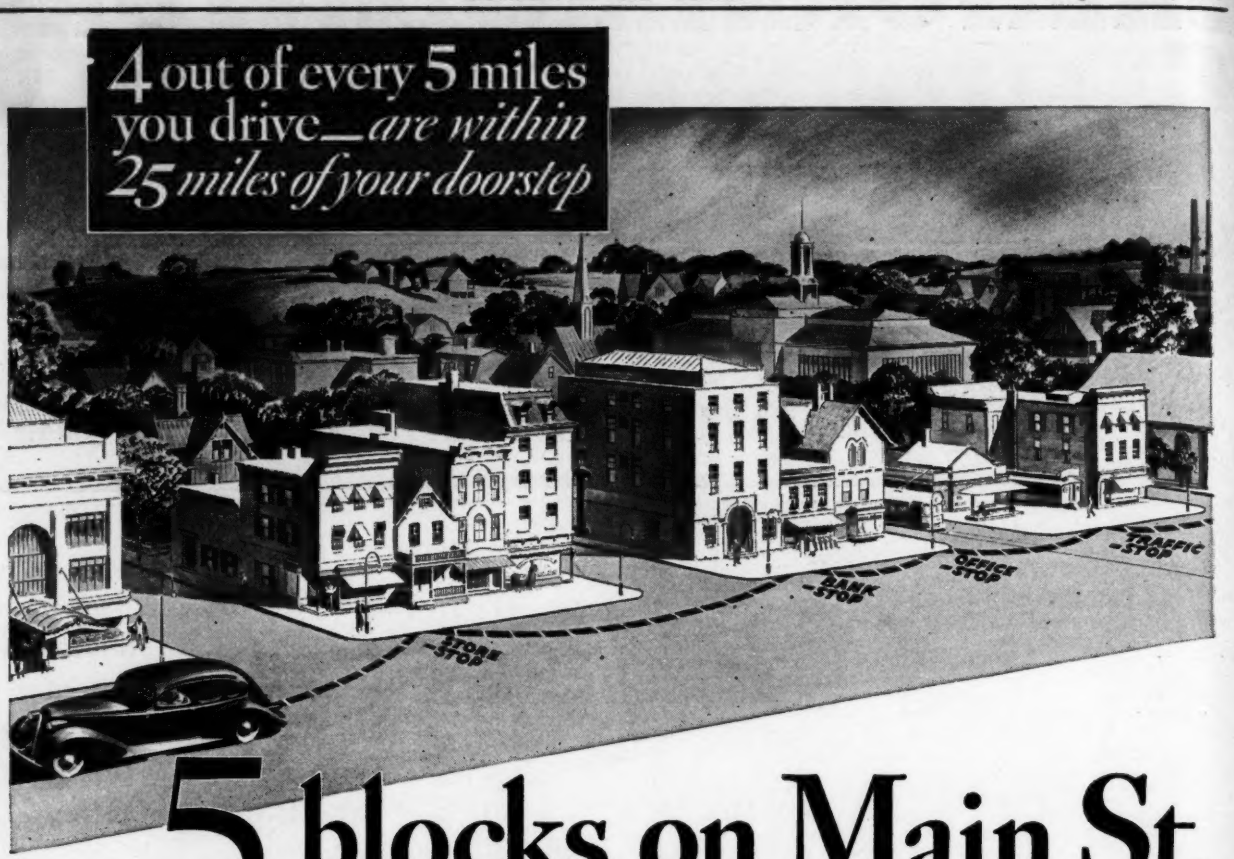

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CALIFORNIA OIL WORLD

Vol. XXVIII. No. 7 SEPTEMBER 5, 1935 Whole No. 1411

Operators To Consider

Shut-Down Of Basin Wells

At Long Beach Meeting

Whether producing wells at Long Beach, Huntington Beach and Playa del Rey are to be shut down in protest against the 50% reduction in crude oil prices announced last week by large purchasing companies, was to be determined at a mass meeting of operators called for Wednesday evening in the City Hall at Signal Hill. Reports from preliminary meetings did not disclose any unanimity of purpose behind the movement. Its sponsors admitted that not more than half of the Del Rey operators attended the Tuesday session, but said that they were favorable to the plan, and that independent operators believe the shut-down will prove an effective means of creating a shortage of refinable crude which would hasten a restoration of crude prices.

Conservative operators believe that those largely responsible for the collapse of proration efforts and the subsequent break in the price structure have failed to grasp the significance of the present crisis. They recall that the last serious price cut, in 1931, lasted 75 days from the date of the cut to restoration of prices; that in 1929 a period of 69 days elapsed before prices were restored. There is nothing to indicate that the present critical situation forced upon a big industry by a relatively small percentage of its members through their consistent refusal to cooperate, will be straightened out in the immediate future.

Neither are there any apparent grounds for reports circulated with the intention of impugning the honor of some of the large purchasers in observance of their contractual agreements. No foundation appears for the claims made that these purchasing companies had agreed to postpone any change in crude prices until after Sept. 9, the time limit fixed for obtaining signatures to the Oil Producers' agreement to make it effective. Anyone familiar with Standard Oil Co.'s policy during the last few years would realize at one the falsity of such claims, as that company—which took the initiative in the 50% price cut—has steadfastly refused to issue any ultimatum. No promises were made in the company's statement, which reads:

"When it is again demonstrated that production can be controlled to keep within consumptive demand, it is to be hoped conditions will justify a return to higher prices."

Meanwhile experienced oil men, including members of the Oil Workers Union,

By E. R. Head

joined hands over the week-end in a big drive to sign up the 20% of the state's crude production not represented on the dotted line of the Agency Agreement. Early this week Neal Anderson, chairman of the Committee of Seven which has sponsored this new curtailment movement, announced that more than 80% of the industry's production has been signde. Volunteer workers started out immediately in a personal canvass to pledge the remainder to support the "production on a basis of consumption program" as the only logical solution of the industry's problems.

Leaders insist that no lasting benefit can be derived from a shut-down of production such as is contemplated in the Los Angeles Basin fields without a definite plan for united support through curtainment. As Mr. Pemberton points out in his Saturday letter to the industry:

"The 'bears', the rugged individualists and those opposed to all forms of cooperation and regulation have had their way. Curtailment has collapsed completely in the intensely competitive fields and in spite of advice and dire warnings, crude prices have been drastically reduced. The gasoline war continues to rage and cannot be ended so long as the supply of crude oil is available to the combatants at their prices.

"This deplorable situation and demoralized condition may be remedied by the culmination of any one of the following five developments:

"1. If **all** producers in the state agree to curtail as of a certain date and actually do curtail as of that date.

"2. If all gasoline marketers reach an agreement as to the price at which gasoline will be sold, and all factors pertaining to differentials between wholesale and retail prices, discounts and all marketing practices are definitely agreed upon and respected.

"3. If the supply of oil becomes exhausted to the point where it is less than the demand and competition in the buying of crude oil becomes real.

"4. If the producers of crude oil who do not own refineries go on a producers' strike and refuse to produce or sell any oil at all until satisfactory prices are offered.

"5. If laws of some kind are passed by either the state or Federal government, requiring curtailment of each and every oil well to its given allotment.

"It is obvious that producers themselves have control of four of the above conditions to recovery. They are unable to control gasoline marketing practices but producers obviously have it in their own hands to decide to curtail; to go on strike; to allow their own oil to become exhausted, or to force legislation, but all of the four programs would call for cooperation of **all** producers . . . .

"We will have curtailment in some form or another until the demand for oil equals the supply. There will be curtailment during the pending period of low prices, but it will be economic in nature because many producers of oil will be unable to continue operations at the present posted prices. Curtailment has been in effect for so many years and has been validated in so many ways and under so many different conditions that it seems ridiculous that producers faced with grave financial loss should not willingly curtail their production to an equivalent amount with everyone else owning wells of the same size. . . . . One certain way to reestablish curtailment and crude oil prices would be to use the strongest efforts possible to persuade every producer who has not already done so to sign the Producers' Agreement immediately and send it to the 'Committe of Seven'."

Ralph B. Lloyd, former Chairman of the Central Committee and former head of the Oil Producers Agency, in a letter to the industry urged support of the new Agency Agreement. He says:

"While we, as producers, overproduce our oil, those able to purchase it will do do at a profit to them and a loss to you. The matter of curtailment is entirely in the hands of the independent producer. The large purchasing and producing companies will follow your lead, for they dare dot do otherwise. If we overproduce, they will overproduce. As to the price of oil, the independent producer can write his own ticket and oil will demand its just place in the gamut of national products provided the independents unanimously curtail their production to normal market demand."

In connection with the proposed Agency Agreement, it should be remembered that this agreement does not become effective first, without practically the unanimous support of the industry, and second, until its legality has been established through injunction proceedings or specific performance granted by a Court of Equity.

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Field Development Notes

Governor Reported To Be Doubtful About Financing Surveys Of Wells

Survey of the Huntington Beach wells planned by the Senatorial Investigating Committee is planned to start as soon as the necessary permission can be obtained from the operators. or legal steps taken, if possible, to let the survey be made. Alexander Anderson has been engaged for the work. However, it is now reported that the Governor is not as enthusiastic for the project as he was and may not let the committee have the $20,000 needed. Chairman Olson is expected to take the matter up with him again if necessary at once. The chairman states that he expects some further hearings on the tidelands questions to be held at the State Building in Los Angeles within another two weeks. The last hearing was in Huntington Beach in connection with the matter of surveys.

How many wells will have to be surveyed is still undetermined. Eighty-odd town lot wells have been acknowledged by their owners as having penetrated the tidelands and are paying royalty to the state, hence they will not be resurveyed. Six Standard Oil wells on the bluff, according to Senator Olson, have been found to have drifted a distance under the tidelands.

Before actually surveying a well, a test may be made at small cost and with very little time to determine whether there is any need for a survey. Use of this test will probably reduce the number of surveys required and may save the state a substantial sum. It has been estimated that there are about 60 wells to be surveyed.

Mr. Anderson's connection with the matter is simply that he has been engaged by the state to perform work that is in his regular line and that he does for any one desiring it. He has been accepted by both parties in similar cases as entirely disinterested.

Oil Found In Semitropic

Only a gas field to date, but oil sand was found at Semitropic in the Richfield's Kerwin well drilled in 1928 on sec. 21, 26s-22e from 3650 to 3750 ft. The facts are told in the report of the State Oil & Gas Division for the first quarter of 1930, where it is stated on page 12 that "this is the only well in the entire area that ever found any oil sand", and again on page 15: "Excellent showings of oil and gas were cored from 3650 to 3725 ft."

Location of the Kerwin well is 16 miles due west and four miles due north of Wasco and eight miles east of the Lost Hills field. The total depth reached by the Kerwin well was 5200 ft. Traces of gasoline have been reported as showing in some of the gas now being produced.

Deep Well Testing

Los Posos Petroleum Co., an independent corporation with headquarters in Los Angeles, is trying to bring in one of the deepest wells in Ventura county, outside of the Ventura Avenue field, located near the center of the w½ sec. 22, 3n-20w. Bottom is at 8116 ft. with five-inch casing set at 7255. At last reports the perforated casing, extending to the bottom, was being cleaned out.

Calco Oil Co., sec. 17, 3n-20w, 1½ miles northwest of Los Posos, has plugged back from 4160 to 4135 ft., and has brought in a 60-bbl. producer, 22 gravity, 2% cut. The ten-inch is set at 2190.

Natural Gasoline Output 41,441,540

July production of California natural gasoline, exclusive of liquefied gas products, totaled 41,441,540 gallons, or 986,703 bbls., daily average 31,829 bbls. Eighty-nine natural gasoline plants, daily capacity 2,030,000 mcf of natural gas, treated 26,130,526 mcf to get the above extraction. Average extraction of gasoline content for all fields in the state was 1.58 gallons per mcf. Daily average of wet gas treated was 844,533 mcf, equal to 41% of the operating capacity of all the plants combined.

Kettleman Hills produced 23% of the state's July yield of natural gasoline. Long Beach came second, Santa Fe Springs third, Huntington Beach fourth, Ventura Avenue fifth, Midway-Sunset sixth, Playa del Rey seventh, Dominguez eighth.

Percentage of extraction in the different fields varied widely. Kettleman's percentage is low compared with several fields whose total yield is much less. Long Beach, second in total production, led the state in number of gallons per mcf. The subjoined table shows the total yield of natural gasoline in the fields important either for total output or for heavy extraction per mcf.

	Number of Gallons	Gallons per MCF.
Kettleman Hills	9,589,162	1.18
Long Beach	7,272,741	3.10
Santa Fe Springs	4,567,261	1.10
Huntington Beach	3,567,261	1.64
Ventura Avenue	3,372,749	1.23
Midway-Sunset	2,581,088	2.08
Playa del Rey	1,962,996	1.35
Dominguez	1,479,056	1.77
Elwood	504,877	2.85
Santa Maria	363,440	2.68
Torrance	237,189	2.68
Elk Hills	146,654	1.93
Coyote Hills	748,504	1.67

Torrance's yield of 2.15 gallons per mcf, despite the low grade of oil, may surprise some, but Midway-Sunset also has, for the most part, heavy oil and the recovery of gasoline is high. Recovery per mcf in older fields is generally greater than in new fields. Los Angeles Basin fields grouped as miscellaneous, including Montebello, Whittier, Brea-Olinda, and the remnants of the old Los Angeles-Salt Lake field, had a total July yield of 863,835 gallons at the rate of 3.16 per mcf.

Oak Park Lands May Be Sold

Negotiations have been going on for the purchase by a large independent company of the J. D. Martin and McKeon Oil Co. properties at Oak Park, San Luis Obispo county. The former consists of a large acreage and two completed wells, concerning which there has been much mystification owing to the limited information given out, due perhaps to the fact that Mr. Martin, one of the discoverers of the Lost Hills field, lives in Fresno, is not met often by information seekers and his employees are supposed to be under orders to leave all talking to him. The McKeon property is the discovery well and lease of the defunct Elberta Oil Co.

An oil operator who has visited the Martin property says that he saw the two wells in action for a short period and he believes that they are good for between 300 and 400 bbls. each when settled to a 24-hour run. Reports have credited them with more. Their depth is about 2100 to 2300 ft. The derrick for a third well has been standing equipped, but not spudded in, since about Jan. 16.

The Martin wells have not been on commercial production, but a loading rack has lately been erected on a road at the base of the hills on which the wells stand. E. G. Martin is superintendent. The Martins are not related.

Oil discovered in the Elberta (now McKeon) wells tested 16 gravity, a fine road and fuel oil product, for which purposes it is now being taken by Mrs. Dolly Adams. The Martin wells are credited with similar production, although an analysis of a sample has been reported to the California Oil World as having tested 22.2 gravity, carrying 21.8% gasoline, the remainder as 16.2 gravity fuel oil, water and sediment less than 1%.

Present status of negotiations for a purchase has not been learned.

Madera Well Abandoned

Western Continent Minerals, Ltd., has abandoned its gas well, sec. 22, 10-17, Bandera station, Madera county. The well was in poor mechanical condition and there may be others drilled, as the presence of gas has been demonstrated, the only questions being the amount and quality for fuel purposes. It is a few miles southeast of where Pure Oil Co. drilled 800 ft. and obtained a small production of low heat value. However, it has not abandoned the field and is expected to drill further tests.

Devine To Drill

Within the next three weeks, Buck Devine, independent operator, will start a new project in the southeast corner of the Adele parcel, old Garfield area, Huntington Beach.

Devine's well will be situated diagonally between Stevco's No. 1 and Kel-Rich's Adele No. 3, expected to be on production in a day or two, bottomed below 4100.

Field Development Notes

Derrick Up For Wildcat Near Puente

North American Oil Consolidated has the derrick up for a wildcat about 2½ miles northwest of Puente and at the corner of Orange Avenue and Eliott Road, which will seek, on the floor of the valley, what a score or more of others have sought in vain in the Puente and San Jose Hills, although none of these wells was dry; however, none had commercial oil. The district is flat with no surface indications existing in the immediate vicinity, but an anticline appears further south.

Some 2500 acres have been leased. The well site is on the Smith ranch, just off Orange Avenue on the west side and on the south line of Elliott. Equipment is moving in and the drill should be spudded in next week.

Less Pliocene covering is anticipated in the new location than has been passed through at Montebello, so that contact with the Miocene is probable at from 2500 to 3000 ft., with the possibility of commercial oil at that point or, in any event, at moderate depth. No previous well has been drilled in this area. Harry Abrams was the geologist who made the location.

North American, an old Midway operator, now busy also at Mountain View and Edison, is making its first venture in the Los Angeles Basin. It has opened offices in Los Angeles where L. E. Dean, vice-president and general manager, will make his headquarters. Main offices are in San Francisco, where most of the stock is owned. Frank Vaughn is superintendent.

Sentous Ranch Gets Test

York Oil Co. will drill a test well on the Sentous ranch about three miles north of the Valley Boulevard and four miles east of Puente. The location is 3000 ft. north and 3000 west of the southwest corner of lot 2 in the e½, sec. 1, 2s-10w.

W. W. Porter is the geologist who examined the area and found what he considered an entirely new structure never before drilled. It is about four miles long and 1½ miles wide. With his partner, W. W. Murphy, Mr. Porter leased some 3000 acres, including all the Sentous ranch. The surface is Miocene and there is hope for commercial results around 2500 ft. in the same sand that the Rio Hondo well on another structure to the southwest found some 35 bbls. daily production.

Kettleman Well In

Standard Oil has completed its No. 36, 19-J in sec. 19, 21-17, Kettleman North Dome, as a 3500-bbl. producer. The gravity was 37.8 and the cut less than 1%. Depth of the hole is 8800 ft. with the 9-inch set at 7997 ft.

In the Middle Dome, Standard is making preparations for a test of its latest well, No. 38-29V, in sec. 29, 23-19. Depth of the hole is close to 7900 ft. with the 9-inch set at 7595 ft.

El Sugundo Well Going On Pump

Republic Petroleum Co., Ltd., will place its discovery well at El Segundo on the pump today (Wednesday). Field men prodict a yield of 400 bbls daily on a steady pumping test. Gravity of the oil is placed at 28.6 degrees, two degrees higher than oil produced from the schist at Del Rey Hills and the Venice field.

That Republic has done its best to make a flowing well out of the new producer is admitted, and the yield by heads at times encouraged the belief of final success. However, the gas pressure appears to be insufficient to make a flowing producer.

To this company, nevertheless, apparently goes the honor of having solved the problem offered early drillers of the El Segundo district, and the credit for the newest field in the state.

Republic has a 90-acre lease on which the discovery well is located, and despite its 7400-ft. depth, a 400-bbl. pumper will make a paying producer after it has paid out. Republic has plans for starting another well as soon as its No. 1 is definitely listed as a producer.

The company's "ham and eggs" lease on the Kern Front is another property deserving of special consideration, for with two flowing wells averaging from their 2100-ft. level as much output daily as the deep discovery well at El Segundo, this lease has now become one of Republic's most cherished possessions. The company's first three completions on its Kern Front Strassburger lease were pumpers averaging about 300 bbls. daily.

Larco Oil Co., financed by the Los Angeles Refining Co., was reported drilling at 5550 ft. in its wildcat, the nearest to the new El Segundo field discovered by Republic Petroleum. It has not yet started to core.

Jergins Completes Well

Jergins Trust on Saturday completed its Wright-Bloemer No. 2, Mountain View, for an initial yield of 6100 bbls. daily.

Deep zone production at Mountain View has been obtained in three sectors, indicating that it underlies most of the field, although cross faults have caused considerable disappointment to some operators. The latest completion sent the field's output to about 17,000 bbls. in excess of its last allotment.

Standard Completes Well

Completion of McPhail No. 2, sec. 36, 27-20, North Belridge, raised Standard Oil Co.'s potential output from the deep zone by 5900 bbls. daily. Gravity of the oil is 34 degrees. Initial report of the completion gave the well a flow of 80,000,000 c.f. of wet gas and a cut of 3%. Depth of the hole is 8500 ft. with a string of 9-inch cemented at 7919 ft. Upon establishing its initial potential, Standard cut the flow to 1200 bbls. daily.

Sovereign To Spud Wildcat Near Gardena

Sovereign Oil Co. will shortly spud in its Long No. 1, a wildcat, just west of Gardena, north of Alondra Park, and approximately four miles southeast of the Republic's new well at El Segundo. If found practical, advantage will be taken of a well drilled in 1930 by Hancock to 6069 ft. The new well is expected to go to the schist at an estimated depth of 7500 ft., thus seeking oil in the same formation in which it is found at Playa del Rey and at El Segundo. The 800 acres under lease were selected because of their location with respect to the fault lines identified at Rosecrans and Torrance and in other wells drilled in the neighborhood.

Sovereign is drilling this well for a syndicate composed of itself, the Royalty Service Corporation, Ltd., and Petroleum Capital Corp. These last two are just finishing the drilling of the sixth and last of the wells planned for their holdings at Playa del Rey. Petroleum Capital Corp. is a private company under the management of Hill Reed & Co.

200-Bbl. Well In

North American Oil Consolidated has obtained a 200-bbl. well of 27 gravity oil at 4300 ft., its first well on the n½, sec. 2, 32-24, lying just west of Buena Vista Lake at the east end of the Buena Vista Hills, Midway. North American has held this land many years without drilling, but it lies right between the Honolulu's producing wells on the s½ sec. 2 and Standard on sec. 25 on the north, so commercial oil was assured. Further drilling depends upon developments.

Bankline Down 254 Ft.

Bankline is drilling at 254 ft. in red shale in its first shallow well in Sespe Canyon, sec. 36, 5-20. H. A. Ivers, an oldtime operator here, is drilling his No. 12 with a star rig, on sec. 1, 4-20. Depth of 150 ft. has been reached, but it has been necessary to straighten the pipe at 90. E. R. McClellan's Rehart No. 4, sec. 4, 4-19, has set 16-inch at 105 ft. and at last reports was in hard shale at 255 ft. Condor Oil Co., a newcomer, has material ready on sec. 6, 4-19.

Hull Drilling At 500 Ft.

Jas. S. Hull of Pasadena, and associates, are reported as down some 500 ft. in sec. 2, 2-10, Rancho Simi, near Santa Susana. The territory is quite shallow and one of Mr. Hull's associates says that gas is strong and gives hopes of a commercial well.

Topa Topa Down 530 Ft.

Topa Topa Oil Co. has reached a depth of 530 ft. at last reports in its second well, sec. 33, 5-19, Hopper Canyon, Fillmore district.

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DAILY PRODUCTION

California Oil World Estimate

	Week Ended Aug. 31, 1935	Week Ended Aug. 24, 1935	Week Ended Sept. 1 1934
Long Beach	77,200	77,900	53,800
Santa Fe Springs	47,900	45,800	36,600
Huntington Beach	41,250	44,000	38,200
Seal Beach	7,500	9,300	6,800
Inglewood	13,400	15,650	7,600
Torrance	6,700	6,700	7,300
Dominguez	22,550	21,000	19,000
Roserans	2,550	2,650	2,900
Del Rey	16,100	17,200	7,700
Lawndale	150	130	140
Potrero	300	370	390
Los Angeles Basin Totals	**235,600**	**240,700**	**180,430**
Ventura Avenue	34,150	35,000	27,500
Elwood	11,900	12,200	12,000
Rincon	2,000	2,150	1,270
Kettleman Hills	78,000	76,350	66,800
North Belridge	11,750	10,750	8,800
Midway-Maricopa	52,900	58,100	48,400
Rest of State	168,700	172,750	115,300
State Totals	**595,000**	**608,000**	**460,500**

History May Repeat

MORE than 30 years ago, California producers in the San Joaquin Valley, faced by a crisis like the one now faced, formed an organization on a basis which made it absolutely impossible for any member to violate his agreement or withdraw; voluntarily submitted to regimentation and orders; shut down their wells for the greater part of two years and by creating a shortage of production compared with growing demand, forced the marketing companies to pay increased prices sufficient to enable producers to stay in business.

The plan of organizaton then followed was unique. It had never been attempted before and has never been attempted since, it frightened many operators sick when they first saw the contract submitted to them, and their attorneys warned each and every one of them not to sign it, but they did when they saw that they must sign it or be completely destroyed. They were obliged to grasp the simple fact that even the loss of their property through signing the contract, if the power given their leaders were abused, could be no worse than the condition they were otherwise facing. It begins to seem as if some such drastic action may become necessary again. Will it be possible?

Revival of business with accompanying increased demand is, of course, the best hope of better prices, but that will take time and until it comes there should be a shut-down if possible. Certainly there must be curtailment. We still believe that there is a brighter outlook for 1936, but that does not justify rushing production to the limit now.

Perhaps if producers persist in their present course, the problem may solve itself by putting many of them out of business and concentrating production more in the hands of relatively larger and fewer independent operators of more experience. The thought has unpleasant suggestions, but it may have to be faced. Perhaps it may be faced with more calmness when we note the fact, standing out so clearly at present, that so many of the experienced and substantial independent operators are the most earnest supporters of curtailment, while many of its violent opponents are the less substantial. Of course, this loose classification is not perfect. Producers who are also refiners, and can use their own crude, are apt to object to what they consider to be too much curtailment. We hope that matters will never come to such a pass as we have indicated may yet be possible. Nevertheless, the possibility is a warning to be heeded.

California had voluntary curtailment with a fair degree of success several years ago. Actually, California had better success with voluntary curtailment than some other states had with martial law to force operators to conform. Why is it failing so completely in this crisis? Can it be that the long struggle has tired some of the operators and that the relief at removal of government control has caused many to break all bounds and run wild? If the latter is true, and if the price cut causes them to realize that it is impossible to conduct the oil business at a profit if production mounts beyond all reasonable levels, it will have been a good thing. Reasonable restraint and control now, while demand is picking up, mean reasonable profits now, with the chance of greater profits when demand has picked up to a point where there is a "sellers' market" for crude. Why not produce less, profitably, for the year or 18 months estimated necessary to create the "sellers' market," rather than run hog-wild and go so far into the hole that all the "sellers' markets" in the world cannot pull you out?

Clayton Wildcat Drilling

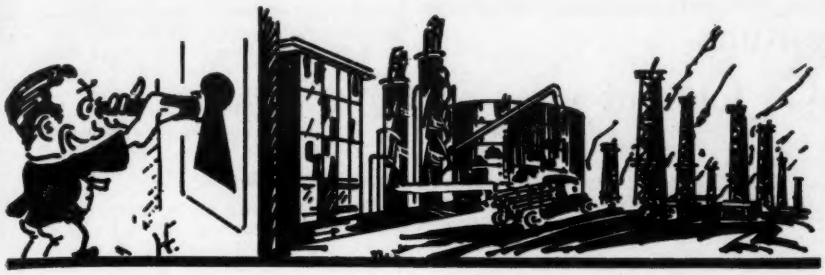
The Clayton wildcat at Houghton Park, North Long Beach, is again drilling ahead. Two tours are working, eight hours each. Mr. Clayton is himself working as driller on the evening tour.

Paloma Well Idle

After having drilled to 2665 ft., the Paloma well at Santa Susana is standing idle. No advices have been obtained as to the probability of early resumption of drilling.

Brea Heights Well At 4900

Pressley & Tull of Anaheim are down 4900 ft. in the test well they are drilling on Brea Heights. John Rothefer of Anaheim, who is associated with them in the work, is in charge.



Away back about the time the big dipper was just a tiny drinking cup, development at Santa Fe necessitated the tearing down of sundry dwellings and boarding houses, in order to make way for the drilling of new wells. One oil company, which shall be nameless, appointed a field office man to take inventory of a boarding house that was doomed to destruction. At the appointed time he sallied forth, armed with a pencil and a pad, apparently quite keen on his assignment, but long after the quitting whistle had blown he had failed to return to the office. The boss, becoming nervous, dispatched the night watchman to find out what fate had befallen him. Arriving at the boarding house, the watchman found him sprawled on the living room floor, with only two entries on the inventory pad, "One case of Three Star Hennessy and one revolving carpet."

And while we are on the subject of astronomy, John Salmond went up to the Griffith planetarium on Saturday, and after listening to the demonstrator describe the glory of the heavens for an hour or so, he frankly admitted that the whole thing was over his head.

Incidentally, Joe Gilliland tells us that one of his Santa Fe boys who is evidently a trifle short-sighted, went up to the Motor Vehicle Department to get a driver's license last week. The clerk switched on the light, and asked him to read the letters on the chart, wherewith he blandly inquired, "What chart?"

On the other hand, one of Jake Nittell's men moans because his daughter is getting so popular he can't park within three blocks of his own house.

When Henry Brett, who handles the stringed instruments in Cy Rubel's orchestra, was accused of playing the mandolin by ear, he indignantly denied the accusation, and claimed that he always used a pick.

According to Harry Severns, an oil field detective agency is hot on the trail of a sneak thief who has been stealing the brasses off the pumps. They have one important clue. The thief wears very large rubbers, so they are now searching for a man with prominent gums.

Speaking of pumps, Fred Smith points out a danger that should be noted by the National Safety Council. It seems that quite a number of workers have recently suffered dizzy spells when operating circulating pumps.

And still on the subject of pumps, we understand that Ken Remy has been trying to sell the Chamber of Commerce a booster pump.

Harry Lee now reports that, contrary to general opinion, prize fighters as a class are not extravagant. In fact, Harry says practically every fighter he knows has a substantial poke.

Among the best boxers in our district, curiously enough, are a couple of undertakers.

Speaking of a town we all know, Val Cassidy says it produces three things: oil, slot machines, and punch boards, and he adds that oil is by no means the dirtiest of the three.

And Bill Hay stoutly maintains that Doc Curtis is a piller in the Brea community.

In this connection we have been somewhat alarmed by a headline in a local newspaper, reading: "Dock Levies Rising."

At this point we notice in a contemporary magazine that a certain well known oil executive has just returned from a vacation in Winternitz. We hate to display our ignorance, but honestly we always thought Winternitz was a kind of underwear.

. . . and when you stop the pumps, the blades of the Baker Wall Scraper close downward into the body and the tool comes safely out of the hole.

You can profitably use a

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WALL SCRAPER

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To you boys who have a weakness for the fair sex, Jim Craig, the bridge expert, issues this solemn warning: "Under all circumstances, the queen takes the jack."

Also, just as a matter of interest, Henry Scanlon has developed a new roll of paper towelling that gives unusual mileage.

And Jim O'Donnell still declares that the boys who pour the concrete foundations are a swell bunch of mixers.

Now to inject a note of sadness into the proceedings, Scotty Connelly reports that one of his very best friends back in the Old Country has just passed away, a victim of very close veins.

Which reminds us of Bill McGraw's friend, who was warned of an impending fuel shortage, so immediately went out and married a woman with a wooden leg.

Then there was the rousty who lived in the oil field hotel and faithfully obeyed the instructions on his medicine bottle, to take two spoons after every meal.

We don't know whether or not it is true, but it is reported that George Sproul, the Montebello nimrod, has given up hunting, having finally realized the fact that it is largely a skin game.

Besides, George can't quite get used to the idea of spending forty or fifty dollars for a deer hunt, and coming home without a single buck.

In conclusion Jack Smeal notes that these fellows who calibrate the oil tanks are a bunch of strapping young men.

Don't forget, during the long dark winter evenings, you can get noodles of fun out of a box of macaroni.—R. S.

California July Refinery Runs 15,077,942; 86.55% Of Output

California July refinery runs of crude totaled 15,077,942 bbls., daily average 486,385 (U. S. B. M. report), equal to 86.55% of the state's July production of 17,417,910 bbls. (A. P. I. final report last week). The increase in July daily average runs over June was 10,436, a little more than twice the increase of 4906 bbls. in daily average production. July daily average runs were the same percentage of daily production as the monthly total, notwithstanding July's extra day. June's daily refinery runs were 85.31% of the month's production, but May's came to 98%. July refinery runs included 460,333 bbls. of non-gasoline-bearing crude used to make lubricants, asphalt, road oil, etc. During June these runs came to 433,272 bbls., during May to 454,754 bbls.

Of July production, 1,788,887 bbls. (10% of the total) was transferred to non-gasoline-bearing crude and residuum stocks. Transfers from the non-gasoline-bearing crude-residuum stocks to those of gasoline-bearing-crude amounted to 498,385 bbls., a little more than the refinery runs of such crude. The above transfers to heavier stocks were nearly three times the inrease (604,022 bbls.) with which the Bureau of Mines credited these stocks for July. The Bureau credits the stocks of gas and diesel oils with an increase of 487,382 bbls., but the two combined only equal about one-third of the combined total credited to these stocks in the earlier forecast. The unusually heavy transfer of current crude production to the heavy stocks brought the supply down 620,104 bbls. to 32,662,130 July 31.

July shipments totaled 1,658,705 bbls. (Pacific foreign, 1,318,011 bbls.; Atlantic foreign, 340,694), a decline of more than 6000 daily compared with June.

Still gas production came to 1,436,235 mcf, Btu equivalent to 376,791 bbls. of fuel oil, presumably replacing the use of that amount of fuel oil at refineries.

Natural Gasoline

July total California production of natural gasoline amounted to 1,020,263 bbls., including 33,560 of liquefied gas products, daily average 32,912 bbls., total refinery utilization 990,501 bbls. (60,813 run to stills, 929,688 blended), daily average utilization 29,900 bbls. Non-refinery domestic demand totaled 51,134 bbls., including 403 bbls. in Alaska-Hawaii shipments, and 151 bbls. in rail and truck shipments. Offshore shipments: Pacific foreign (including Panama Canal Zone) 54,801 bbls., Atlantic foreign, 110,679 bbls. Total market demand (non-refinery), domestic and foreign, 216,614 bbls., including 39,585 bbls. of liquefied gas products.

Combined total of crude oil and natural gasoline gave California a total net supply of raw material amounting to 18,438,173 bbls.

July Gasoline Output

Total July production of commercial gasoline by 59 California refineries (daily rated capacity 835,310 bbls. of rude oil, operating at less than half capacity) amounted to 6,047,135 bbls., 195,069 daily. Stock transfers and imports into Pacific Coast home marketing territory (Arizona, Nevada, Washington and Oregon) from other states raised the total supply to 6,091,652 bbls., 196,050 daily. Refinery output was as follows: Straight-run 3,432,305 bbls., 110,720 daily; natural gasoline 982,952 bbls., 31,108 daily, cracked 1,631,878 bbls., 52,641 daily. July daily yield remained substantially the same as June's, a decline of 3000 bbls. in natural gasoline use being offset by increases of 1000 and 2000 daily in straight run and cracked production respectively.

July Gasoline Demand High

July domestic demand, inluding bunkers, totaled 4,658,127 bbls., 150,262 daily, **the highest in several years.** Alaska-Hawaii, rail and truck shipments raised the above total to 5,024,221 bbls,, 162,071 daily. Other shipments were as follows: Pacific foreign 431,081 bbls., Atlantic foreign 308,536; intercoastal 694,584 bbls. As compared with June, shipments were 2000 bbls. per day less.

July supply was 478,267 bbls. short of total demand, amounting to 6,569,919 bbls., and this was made up by withdrawals from stocks.

Stocks of gasoline-bearing crude are credited by the Bureau of Mines with a reduction of 620,104 bbls., to 32,662,130 bbls., and the total Pacific Coast stocks of all oil and natural gasoline, crude and refined, were reduced by 191,028 bbls. (more than double the total cut indicated by the A.P.I. preliminary storage figures), but the total reported by the Bureau amounted to 120,273,956 bbls., against the A.P.I. forecast of 118,460,997, due to the inclusion of additional stocks in the Bureau's final figures. Stocks of gasoline-bearing crude were 4,000,000 bbls. less on July 31, 1935, than on the same day last year.

In addition to the above stocks there were on July 31 in intercoastal transit 74,772 bbls. of gasoline and 6835 bbls. of lubricants.

Seven-Month Record

During the first seven months of 1935 California production of crude oil averaged 512,000 bbls., refinery runs 460,000, shipments 45,000, increases over last year of 28,000, 25,000, and 17,000 bbls. per day respectively. During the same period this year, production of California gasoline averaged 175,000 bbls. daily, increase over last year 9000; shipments 51,000 bbls., increase 5000; domestic demand 128,000, increase 5000 bbls.

U. S. Inquiry Into Price Cut Sought

While no official word has been received from Washington, a possibility appears that there will be an inquiry by the Department of Justice into the recent cut in the price of crude oil. Such an inquiry may or may not lead to further action. U. S. Attorney Hall had no information on the subject when asked, but that does not necssarily mean anything, for antitrust matters, under which head the investigation might be expected to come, are handled by the Attorney-General direct through a division in his department.

The question has been brought directly to the attention of the Attorney-General by a telegram forwarded by the Independent Petroleum Association, through John B. Elliott, chairman of the executive committee, in which he declared that the cut had come without an hour's notice, that demand had long exceeded production and in the face of large withdrawals from storage. He further charged that the move demonstrated the power of monopoly within the industry.

Mr. Elliott stated Wednesday and that he had received no reply from Washington and did not expect any but that he did expect action to be taken.

J. C. Coulter, Secretary of the Oil Workers Association, has also asked President Fremming, now in Washington, to request an investigation.

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Umpire Cuts Office Staff

Summary action was taken by J. R. Pemberton, oil umpire, to reduce his official staff when last Wednesday the Central Committee of Oil Producers voted to step aside and give a clear field to efforts now being made by the Committee of Seven to obtain the solid support of the industry in behalf of the proposed operators' agreement.

Withdrawal of financial support by two major companies and rumblings from other sources, together with the committee's action which eliminated the necessity for maintenance of such an expensive set-up, were cited by the umpire as the reason for a reduction of his staff to a bare skeleton of its former personnel. The organization, which has numbered more than fifty most of the time, was cut to eight. There will no longer be a switchboard—just a few stenographers and department heads to handle calls and statistical records absolutely necessary to maintain the records of the industry's operations.

Announcement of the plan to reduce his force to a mere skeleton organization was made by Mr. Pemberton to the Central Committee as the first move in drastic reduction of expenses. Maintenance of the organization has cost approximately $25,000 per month and, together with other steadily increased costs, has been a target for complaints when the question of reducing the load has come up for discussion. However, members of the staff were given two weeks' pay in lieu of notice, and were notified that when and if the price cut is restored and proration is continued, they will be recalled to their duties. There was no guarantee of this promise and it is expected that a number of the engineers and others will be absorbed by the larger companies from whose ranks they originally were recruited.

Harvey Lee, assistant to R. E. Allen, assistant umpire, is the first to return to the ranks. He has definitely severed connections and after a 10 days' interim will enter the geological department of the Union Oil Co. Several others have prospective jobs, but are not yet ready to disclose their plans.

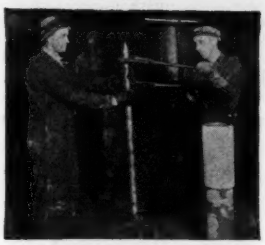
Meanwhile, Umpire Pemberton in his letter to the operators, urged their continued financial support commensurate with what would be agreed upon as a reasonable share of the total small expense for maintenance of this skeleton force.

Water Enters Gas Wells

Water and sand are causing much trouble in some of the carbon dioxide gas wells in the Salton Sea area, Imperial Valley. Engineers have recommended that wells, only a few hundred feet deep, be cemented from the top down, and this plan may yet have to be followed despite the expense involved. The drilling is, of course, still in a more or less experimental stage although the presence of the gas in commercial quantities has been established.

Demand for the dry ice is now in excess of the plant's capacity. It is being sold locally and some is shipped to Los Angeles.

Here are the Quick Sure Methods of Determining the Straightness or Direction of HOLES



Tightening up on SYFO case preparatory to lowering into hole.

SYFO Clinograph

Daily use of the SYFO Clinograph permits accurate control of inclination in drilling operations. These tests are accurately and easily made **without** the use of dangerous acids. The SYFO can be used on a wire line or as a "Go-Devil" running inside the drill stem or on sand or bailing line in open hole. It affords a quick, inexpensive daily record on paper of vertical deviation in drilling—records for permanent filing.

(U. S. Patent 1,962,634 and others pending.)

SURWEL Clinograph

The most accurate and practical method ever devised for measuring the degree and direction of deviation. The SURWEL is a gyroscopic Clinograph which provides a true map of the well at all depths, prepared from actual photographic records. Not affected by Tortuosity nor by Magnetic Influence when recording. Self-checking—produces duplicate records, i.e., going in and coming out.

(U. S. Patents 1,124,068—1,812,994—1,959,141—1,960,038 and others pending.)

Reading the photograph story just told by a SURWEL run.

H-K Clinograph

(Hewitt) (Kuster)

Introduces a radical improvement and exclusive method of recording in single readings both the amount and the direction of inclination, utilizing the triangular suspended cross hair plumb bob and floating compass principles with automatically operated photograph camera.

Anchoring bottom plug nose to instrument.

The H-K Clinograph (designed for open holes only) is lowered on a sand or bailing line at a speed ranging from 400 to 800 feet per minute. Permanent, accurate records on paper discs are available within five minutes after removing instrument from hole.

(U. S. Patent 1,812,994 and others pending.)

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3118 Blodgett Avenue

Long Beach, Calif.
549 E. Bixby Rd.
(3800 Block—Atlantic Ave.)

Development Of Oil Centrifuge Gives Accurate Test For Water

Back in the days before the horseless carriage made the petroleum industry loom large in the sight of men, the chief uses for oil were for fuel and for paving. The western railroads were just experimenting with fuel oil back in 1907 and crude oil was considered the best material for road surfacing, both for its economy and for its preservative and water shedding qualities.

At that time the method of testing crude oil for water and B. S. content was by the so-called "settling test," which consisted of making a cut with gasoline or other diluent and allowing the mixture

Fig. 1
Pointed Settling Tube
Developed to give more accurate readings than were possible with cylindrical type. From this tube the modern centrifuge tube was derived.

to stand for a week or two. The closest readings were to 1 per cent until a pointed tube (Fig. 1) closely resembling the modern centrifuge tube was developed by the Braun Corp. to make more accurate readings possible.

In 1907 Charles A. Blackmar, who was at that time City Hall Inspector of Los Angeles, submitted specifications for an oil centrifuge to the Braun Corp., who made up a machine for his use. The technique for use of this centrifuge was so simple and easy, the results so accurate and the savings in time and money so great that the large consumers of crude oil at one took it up as the best means of checking their purchases. It is interesting to note that, while the producers and sellers of oil are at present the principal users of the oil centrifuge, the consumers were chiefly instrumental in its development. Sale of dehydrated oil has, at the present writing, practically eliminated the consumer of crude from the centrifuge market.

With the adoption of the oil centrifuge as a necessary means of testing for B. S. & W. by the producers came various improvements and safeguards, culminating in the present machine (Fig. 3) which is as completely safe as human ingenuity has been able to make it. The elimination of fire hazard through the development of a motor which cannot arc or spark is universally conceded to be a long step ahead.

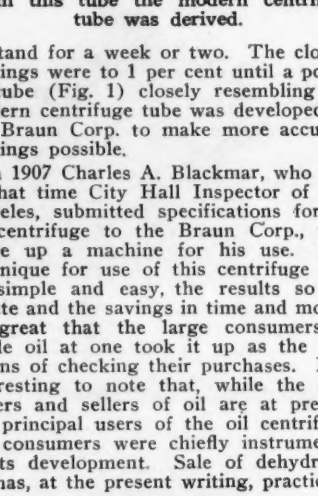

Fig. 2
An Early Type of Oil Centrifuge. This Machine was Belt Driven.

Fig. 3
Modern Oil Centrifuge
This machine is completely enclosed and is powered by a motor which will not spark, has no brushes and is permanently lubricated.

On Aug. 20, 1921, the Committee on Petroleum Products and Lubricants of the American Society for Testing Materials submitted "A Method of Test for Water and Sediment in Petroleum Products by Means of Centrifuge" as tentative under the designation D-96. They also submitted as tentative test D-91, "A Method of Test for Precipitation Number of Lubricants" in which the centrifuge was specified. Both were tentatively adopted by the A. S. T. M.

On Oct. 31, 1922, the Federal Specifications Board of the U. S. Government adopted test D-96 under government method 300.3 for routine and inspection of petroleum products.

The test was advanced from the status of tentative to standard on Aug. 28, 1924, after revision. It was further revised on Sept. 1, 1928, and Sept. 2, 1930, Test D-91 was advanced to the status of standard on Sept. 1, 1933, with revisions. Test D-96 was adopted as standard in 1928 by the American Standards Association under No. Z 11 **h**, and later test D-91 was adopted under No. Z 11.30. The adoption of these standards gave distinguished recognition to the centrifuge as necessary equipment in the oil laboratory.

Today the oil centrifuge is recognized as a necessity not only by the large oil companies, but the small producer as well wherever efficient business practice is observed. It is the sole method of checking B. S. & W. in crudes with accuracy and upon this test depends the assurance of equitable dealing.

C. C. M. O. Backs Up

After having drilled close to 6400 ft., C. C. M. O. is backing up in its McKendree College No. 1, the w½ sec. 11, 30-28, Mountain View. A test will be made at 5400 of some oil sand passed through in the drilling but no high hopes are entertained of getting anything of value.

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Crude Stocks Of 175,000,000 Bbls. Suggested By U. S. Bureau Of Mines

Stocks of domestic and foreign crude Saturday, Aug. 17, totaled 311,515,00 bbls., (U. S. B. M. report) compared with the previous week, a net decline of 1,878,000 bbls.

Current reports for the week ended August 17 indicate that the daily average crude oil production was about 2,770,000 bbls., increase 50,000 over the previous week. Daily average imports were 146,000 bbls., or nearly double the previous week. Daily average crude runs were about 2,770,000, or slightly above the previous week.

The following data were obtained principally from a study of the weekly reports of crude oil stocks:

1. 55 companies hold 96% of total stocks (334,757,000 bbls. on June 30, 1935).

2. 10 companies hold 76% of total stocks.

3. Weighted average days' supply (exclusive of line fill) of 25 leading companies as of June 30, was 157.

4. Weighted average days' supply of five important companies with relatively large stocks was 180.

5. Weighted average days' supply of five important companies with relatively little storage was 45.

6. If the average in (5) is accepted as the proper level for all companies, theoretical working stocks are about 175,000,000 bbls. (including 25,000,000 bbls. line fill), or about 150,000,000 below the present level.

Compared with July 13, a period a little more than one month ago, national stocks on Aug. 17 represented a decline of 5,530,000 bbls. Figures compared as of each date are from the Bureau of Mines weekly estimates. As compared with Jan. 5, the decline in national stocks on hand as of Aug. 17 comes to 10,558,000 bbls. However, it should be noted that **the decline is in stocks of domestic crude only, the stocks of foreign crude being increased and imports continuing to come in.** There is nothing in the reports to show whether or not the stock reports given include what proportion of the foreign supply set forth, if any, is being held in bonded warehouses for re-export. Considerable quantities are being so held and whether these are included in the statements issued is important. Here are the figures taken from the weekly report in each case:

Jan. 5, stocks of **domestic crude** on hand, 318,736,000 bbls.; Aug. 17, same, 307,348,000, **decline, 11,388,000 bbls.** Jan. 5, stocks of **foreign** crude on hand, 3,437,000 bbls; Aug. 17, same, 4,167,000 bbls., **increase 730,000 bbls.**

The above figures do not include California non-gasoline-bearing crude. Data for this state cover only gasoline-bearing crude and these stocks show a decline as of Aug. 17 compared with Jan. 5 of 5,551,000 bbls.

Low Stock Level Urged

In suggesting 175,000,000 (including 25,000,000 bbls. pipe line fill) as "theoretical working stocks," the Bureau of Mines has advanced something calling for considerable thought. Perhaps the suggestion has been urged by some of the oil companies and is undoubtedly put out as a "feeler." It is in line with the thought of some students of the situation over a period of years. However, it is apt to encounter strong resistance, for its attainment will necessitate continued and quite large curtailment of production. It should receive support from those who look at the "long pull," but there are many who consider rather the "short pull."

STOCKS OF CRUDE PETROLEUM
AUGUST 10 AND 17

Grade of Crude Oil	Aug. 10	Aug. 17	Change from Aug. 10
	Thousands of Barrels		
Pennsylvania Grade	4,865	4,923	+ 58
Other Appalachian	899	879	— 20
Lima-N. E. Indiana-Mich...	1,385	1,423	+ 38
Illinois-S. W. Indiana	11,469	11,411	— 58
N. Louisiana and Arkansas..	10,638	10,846	+ 208
W. Tex. and S. E. New Mex.	31,096	30,745	— 315
East Texas	26,222	25,550	— 672
Other Mid-Continent	141,033	140,161	— 872
Gulf Coast	24,883	24,456	— 427
Rocky Mountain	27,418	27,630	— 58
California	29,436	29,594	+ 158
Domestic crude	309,344	307,348	—1,996
Foreign crude	4,049	4,167	+ 118
Total [1]	313,393	311,515	—1,878

[1] Represents approximately 98% of total stocks in the United States, exclusive of producers' stocks.

Oil Operations In Few Changes

Index numbers of the California Oil and Gas Association, indicating comparative operations of the oil industry for July, show slight changes from the June index numbers for the most important items. The index number for crude oil production rose from 86.80 in June to 87.56 in July, and total new supply from 86.26 to 87.12. The index number for domestic demand declined from 89.84 in June to 89.03 in July, total shipments from 87.77 to 80.45, and total market demand from 89.25 to 86.22. The index number for total stocks, all oils, fell from 76.76 to 76.47.

For the first seven months of 1935, crude oil production was 5.86% greater than for the same period of 1934, natural gasoline production was .5% greater, and total new supply 5.56% greater. Crude run to stills was .19% more, and gasoline from natural gasoline 1.26% less. Straight-run gasoline production was 10.07% greater, cracked gasoline production 1.61% greater, and total gasoline and engine distillate production 5.81% greater. Kerosene production was 8.89% less. Domestic demand was 6.11% greater for the seven-month period, total shipments 11.41% less, and total market demand .10% less.

Crude oil shipments were greater by 63.98%, natural gasoline shipments by 223.79%, gasoline and engine distillate shipments by 11.04%, lubricants shipments by 12.13%, and asphalt shipments by 99.47%. Kerosene shipments were less by 20.36%, gas oil and diesel oil shipments by 17.45%, and fuel oil shipments by 49.60%.

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Oil field production machinery salesman familiar with California operators. Excellent opportunity for advancement. Address application to Box 325, California Oil World. 9-5

WANTED—SALES ENGINEER

Graduate mechanical engineer with several years practical experience in oil production for sales and service work by company specializing in underground surveying, testing and directional drilling. Permanent position for the right man. Apply by letter accompanied by small photo, giving detailed information re education, practical experience and salary. Address Advertiser, care of California Oil World, Box 500. 9-12

WANTED—ROYALTIES

Landowners' Oil and Gas royalties. Reply to Box 350, California Oil World. 9-12.

NEW MAPS FOR SALE

New ownership and lease maps Kettleman Hills or Southeast Kings County gas area. For list and prices write Jas. W. Beebe, 615 No. Fulton St., Fresno, Calif. tf

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Department of the Interior, U. S. Land Office, Sacramento, California. Notice is hereby given that the e½ sw¼ and sw¼ se¼ Sec. 15, T. 32 S., R. 23 E., M.D.M., 120 acres, in Unit No. 1, and the ne¼ nw¼ Sec. 30, T. 32 S., R. 24 E., M. D. M., 40 acres in Unit No. 2, Midway oil and gas field, California, subject to consolidation if awarded to the same qualified bidder, are offered to the bidder of the highest amount offered per acre as a bonus for the privilege of leasing said land under Sec. 17 of the act of February 25, 1920 (41 Stat. 437), at the royalty rates fixed in the standard lease form, containing an agreement to cooperate in a unit plan of development acceptable to or prescribed by the Secretary of the Interior, copy of which may be procured from the Commissioner of the General Land Office. The sale will be held in this office at 10:00 a.m. on September 30, 1935. The successful bidder must deposit on the date of the sale with the Register of the Sacramento Land Office, certified check on a solvent bank, or cash, for one-fifth the amount bid by him and file the showing of qualifications to receive a lease required by Sec. 15 of oil and gas regulations. Bidders are warned against violations of the provisions of Sec. 59 U. S. Criminal Code approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior.

ELLIS PURLEE, Register. 9-26

Value Of Centrifuge Tests On Cut Oil Explained

By William Woelflin
Research Engineer, Petroleum Rectifying Co. of California

One of the principal tests that is made on "cut" oil is the determination of the water and sediment or "B.S. and W." in the oil. The usual method employed in the oil industry in making this test is the commonly called "centrifuge" method. This method has been standardized by the American Society for Testing Materials and is known as the Standard Method of Test for Water and Sediment in Petroleum Products by Means of Centrifuge, A.S.T.M. Designation D 96-30.

Importance of Test

The centrifuge test as it is made in the field is usually considered to be of importance only to the field gauger for determining the cut of "B.S. and W." content of the oil to be shipped. It is of equal importance, however, to the production department in obtaining information on the condition of the producing wells, and also in controlling the dehydration process.

In the production department, a daily record of the centrifuge cuts on the fluid from a well producing both oil and water is necessary in order to tell the rate at which the water content is increasing. A study of these results may indicate the advisability of working over the well.

A study of the relative amounts of water and emulsion precipitated out in the centrifuge tube, when comparing the daily cuts on the oil from a well, will give valuable information on the condition of the well pump. With all other factors in the lifting of the oil-water mixtures constant, the extent to which the water is dispersed in the oil, or to which a permanent emulsion is formed will depend on the amount the pump is worn. The high degree of agitation caused by the slippage in a worn pump will cause the water to be dispersed in the oil in very small particles, which results in emulsions that are difficult to dehydrate. The centrifuge cuts are of value therefore in determining the condition of the pump without actually removing it from the well.

The control of the process employed to dehydrate the oil to pipe line requirements is dependent on periodic checks to determine the cut of the dehydrated oil. These periodic checks may lead to a change in the operation of the process, such as lower temperatures, higher through puts, etc., which will result in a reduction in the cost of dehydration. The control of the dehydration process in this manner will avoid the possibility of the clean oil tanks being filled with oil that is to wet to ship, and being turned down by the gauger.

The centrifuge test is of considerable importance to those departments that control the production and dehydration of oil as well as the gaugers, or those buying and selling oil.

A. S. T. M. Centrifuge Method

Briefly stated the A. S. T. M. method consists of mixing 50 milliliters of benzol and 50 milliliters of the oil to be tested in each of two 100 millilter centrifuge tubes. The tube is tightly stoppered, vigorously shaken, immersed in a water bath, maintained at 120° F. for 10 minutes, and then centrifuged. Readings are made at ten minute intervals until two successive readings give the same result. The material centrifuged to the bottom of the tube is usually some water and a layer of unbroken emulsion between the water and oil. At times there may be some sand or sediment below the water layer. The sum of the total amount of material centrifuged to the bottom of the two tubes is the percent of "B. S. and W." in the oil. These tests can be made readily in the field, and the results obtained in a minimum of time.

In practice, several variations of the A. S. T. M. centrifuge method outlined above have come into quite general use. The principal changes are in the kind and quantity of the diluent, (cutting solution), the speed of the centrifuge, and the size of the centrifuge tube. The first two changes were made in order to centrifuge down all the finely divided emulsion contained in the oil and to resolve the emulsion into its oil and water components. The third change was made in order to use portable centrifuges which in most cases are hand driven. These changes in the A. S. T. M. procedure will be discussed further.

Cutting Solution

The functions of the cutting solution is twofold. First, it must dissolve the oil, asphalts, and waxes, in order to prevent these materials from being precipitated to the bottom of the centrifuge tubes with the "B. S. and W." Second, the cutting solution must be of light gravity and of low viscosity in order that all the very finely divided emulsion may be centrifuged to the bottom of the tube.

When the cutting solution does not contain the proper solvent, some of the waxes and asphalts may be precipitated along with the emulsion. When this occurs the appearance of the wax is quite similar to the appearance of a light yellow emulsion, and may give what seems to be a high cut on the oil.

The precipitation of wax occurs most frequently when the heating step specified in the A. S. T. M. Standard is eliminated. If it is desirable to check a cut to see if wax is present with the emulsion, the contents of the centrifuge tube should be again thoroughly mixed. A pointed wooden stick is convenient to stir up the emulsion in the bottom of the tube to facilitate mixing. The cut is heated in a water bath maintained at a temperature of 120° F. for ten minutes and again centrifuged. If the total quantity of material centrifuged to the bottom of the tube has been reduced by the heating, then the high cut previously obtained (without heating) was due to wax, and all cuts on these wax containing oils should be heated before centrifuging. Another method of eliminating the precipitation of wax in the cut is to use a cutting solution that will dissolve the wax, and at the same time be of such gravity and viscosity that all the fine emulsion particles will be centrifuged down. Waxes may be encountered in the oils from the

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California fields as well as in those from the Mid-Continent and Texas.

The lower the specific gravity of the cutting solution, the greater will be the gravity differential between the oil and water phases of the cut, with the result that the emulsion particles of extremely small size can be rapidly separated by centrifuging. In order to obtain the advantages of the lower specific gravity a number of cutting solutions besides the benzol specified in the A. S. T. M. method have been employed. A list of the various cutting solutions, together with their specific gravities, and districts in which they are used, is shown in Table I. Some of these cutting solutions have been developed for their specific solvent power as well as their lower gravity.

The A. S. T. M. method specifies that 50 ml. (milliliters) of the oil to be tested and 50 ml. of the cutting solution should be placed in each of two centrifuge tubes. In field practice usually only one tube is filled with the oil and cutting solution. The amount of oil tested in the 100 ml. tube may be either 50 ml. or 25 ml. When only 25 ml. is tested the additional cutting solution decreases the viscosity of the mixture, and increases the gravity differential, so that the finer emulsion particles can be centrifuged out and also since the cutting solution has less oil and waxes to dissolve, decreases the difficulties arising from the precipitation of wax in the cuts. When only one tube containing 50 ml. of oil is centrifuged, the volume of B. S. and W. obtained is multiplied by 2 in order to obtain the per cent of B. S. and W. If only 25 ml. of oil were centrifuged, then the multiplying factor is 4.

Demulsifying Chemicals

In order to show the actual amount of water in the oil instead of the emulsion content, a demulsifying chemical is added to the cut before centrifuging, to resolve the emulsion into its oil and water components. The addition of phenol to the cutting solution, as shown in Table I, is one of the chemicals that is used for this purpose in California. In most of the fields, however, a drop or two of Tretolite is added to the cut. A convenient way of handling Tretolite for this purpose is to mix it with an equal quantity of a solvent such as benzol in order to reduce its viscosity. Two or three drops of this mixture are added after the oil and cutting solution is poured into the tube. In California B-489 Tretolite has been found quite satisfactory for this purpose, while in some of the Mid-Continent fields and West Texas, C-44, and C-23 Tretolite are used. A demulsifying chemical should be added to the cut whenever it is desirable to determine the actual water content of the wet oil rather than the emulsion content.

Centrifuge Machine, Tubes

The machine for centrifuging the 100 ml. tubes is electric driven, and in most cases conforms to the A. S. T. M. standard. However, since emulsions of very small particle size have been encountered, a centrifuge capable of whirling 100 ml. tubes at higher speeds has been introduced. It is possible to obtain centrifugal forces onsiderably in excess of those specified by the A. S. T. M. method with the high speed machines.

The machines for centrifuging the 15 ml. tubes may be either electric or hand driven. In the Mid-Continent, Texas, and Rocky Mountain fields, a hand driven machine making 100 r. p. m. when the handle is turned at 50 r. p. m., is generally employed especially by field gaugers because these hand machines are easily portable and do not require electric power.

The hand driven machines do not exert the centrifugal force required for a standard test when turned at ordinary speeds. This machine cannot be relied on, therefore, to centrifuge out all the "B. S. and W." except in cases where the particle size is extremely large. It is also more difficult to check results on tests made by different gaugers, since the centrifugal force depends upon the speed with which the operator turns the handle.

The 100 ml. tubes, either the pointed, or the pear shaped, usually conform to the A. S. T. M. standards. The pointed tubes are quite generally used in California, and in most laboratories. However, in the Gulf Coast and in parts of the Mid-Continent the pear shaped tubes are still used.

The 15 ml. pointed tubes are employed in parts of the Mid-Continent, Texas, and Rocky Mountain districts. The tubes of this type are now graduated from 0 to 100 instead of in milliliters, and usually equal quantities of oil and cutting solutions are centrifuged.

The results obtained with the 100 ml. tube centrifuged in an electric machine are much more accurate and dependable than those obtained with the 15 ml. tube, primarily because of the larger sample, and because the larger tube is centrifuged in the electric machine capable of exerting high centrifugal forces.

While the determination of water, emulsion, and sediment in cut oil by the centrifuge is one of the most important tests made on crude oil, the actual method of test varies within rather wide limits. The test, however, will give accurate results in the particular producing field for which the changes had been developed, and is employed daily as a basis for buying and selling oil, and for obtaining data for the production department, as well as a control in the dehydration process.

TABLE I
CUTTING SOLUTIONS

Components	Ratio	Specific Gravity at 60°F.	Where Used
Benzol (90%)		.875	A. S. T. M. Standard
Benzol containing 200 gms. phenol per gallon		.875	California
Gasoline		.740	All districts
Gasoline containing Tretolite		.740	Texas, Mid-Continent, California
Gasoline—Carbon disulphide	3:1	.872	Mid-Continent, California
Petroleum Ether—Carbon disulphide	3:1	.813	California
Petroleum Ether—Benzol	3:1	.720	California
Casing head gasoline—Carbon disulphide	3:1		California
Casing head gasoline—Carbon disulphide containing 200 gms. of phenol per gallon	3:1		Ventura Ave. Field, California
Ether (Sulphuric)		.719	Gulf Coast
Gasoline—Ether (Sulphuric)	3:1	.737	Gulf Coast

California Production 595,000 Bbls. Per Day

California production for the week ended Aug. 31 totaled 595,000 bbls. per day, according to an estimate compiled by the California Oil World. Compared with the previous week's 608,000 bbls., there was a decline of 13,000 bbls., daily.

Outstanding increases for this week as compared with last week were at Santa Fe Springs, Kettleman Hills, Dominguez and North Belridge. Kettleman Hills increased 1650 bbls. per day from 76,350 for the week ended Aug. 24, Dominguez increased 1550 bbls. from 21,000 to 22,550 bbls., Santa Fe Springs increased 2100 from 45,800 to 47,900 and North Belridge 1000 from 10,750 bbls. to 11,750.

Decreases offsetting the increases were noted at Midway, Huntington Beach, Inglewood, Seal Beach, Del Rey, Ventura Avenue and Long Beach. Midway was down 5200 bbls., Huntington Beach 2750 bbls., Inglewood 2250, Del Rey 1100, Seal Beach 1800, Ventura Avenue 850 bbls. and Long Beach 700 bbls. Other decreases were less than 300 bbls. each.

Los Angeles Basin totaled 235,600 bbls. for the week ended Aug. 31 as compared with 240,700 for the week ended Aug. 24 and 180,430 for the week ended Sept. 1, 1934, a year ago.

Del Rey Well Sidetracking

Birch-Royer has lost a core barrel at 6300 ft. in its Playa del Rey well south of Manchester Avenue and is sidetracking it to clear the hole.

Whittier Well Drills Ahead

The Texas Co.'s City of Whittier well at Montebello is drilling ahead and the depth was reported Tuesday as 6600 ft. No oil of value has yet been encountered.

G. P. Down 6086 Ft.

General Petroleum is down 6086 ft. in the test well it is drilling on the Western Gulf's leases at Oxnard.

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Crude Price Deviations Expected

While crude oil prices are expected to deviate from posted schedules until the present muddled situation within the California industry is straightened out, no serious deflections are anticipated. Purchasing companies last week slashed refinable crude prices 50% and more, the sharpest general crude price cut in five years, and the first change in crude prices since Sept. 6, 1933, when the petroleum code went into effect with prices fixed by Sec. Ickes of the Interior Department.

Because of the increased number of refineries, large and small, now in operation or preparing to resume activities, it is anticipated that there will be the usual scramble—this time for higher prices—but the next two weeks are expected to reveal a mixture of prices despite the new posted schedules set up by the purchasing companies. Little or no improvement in the situation can be hoped for until the industry agrees on some definite program of holding crude production within the limits of consumptive demand.

The state's crude output has steadily mounted since the first of June when federal restraints were removed. During August it reached a five-year peak and purchasers were faced with the prospect of adding heavily to storage, which they were unwilling to do at prevailing prices. Standard of California, the largest purchasing company, therefore took the initiative in cutting prices to levels more in line with prices being received for its refined products. In announcing the new prices it will pay for crude at the well, the company pointed out that sellers who are unwilling to accept these prices will be able to cancel their contracts. The statement concludes: "The company holds no contracts for the purchase of oil which a seller who does not wish to accept these prices cannot cancel either immediately or upon ten days' notice, according to the form of the agreement, and the company has a similar right to cancel out its day-to-day contracts immediately." Such action is optional, however.

Standard's new price schedule represents a maximum reduction of 50c to 60c per barrel on the lightest grades and a minimum of no change on the heaviest grades the company will purchase. Union Oil Co., General Petroleum Corp., The Texas Co. and other purchasers also announced new price schedules—which agreed with Standard's except in fields where Standard makes no purchases.

Twenty-seven gravity crude at Signal Hill, accepted as the base level for "dollar oil," was cut to 50c with a low of 46c for 31 to 31.9 gravity. Huntington Beach was trimmed to 53c for 20 gravity and down to 43c for 30 gravity, while Santa Fe Springs was shaded to 57c for 21-21.9 (bottom gravity), against 41c for 38-38.9 top gravity crude. Del Rey crude prices—never as high as similar gravities throughout the Basin because of the quality of the oil—were cut to 65c for 14 gravity and to 36c for 26-26.9 gravity. Inglewood, the other active Basin field, was cut to a low of 43c for 32-32.9 and 47c for 27 gravity.

Kettleman Hills was reduced to 62c for 33-33.9 gravity, to a low of 56c for 39-39.9 gravity.

CALIFORNIA CRUDE OIL PRICES—Effective Aug. 29, 1935

PRICE PER BARREL IN FIELDS INDICATED

Gravity	Signal Hill, Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans Dominguez, Torrero	Elwood Terrace	Torrance	Richfield	Whittier La Habra East Coyote	Montebello	Coyote Hills	Santa Fe Springs	Kern River, Mt. Poso, McKittrick, Newhall, Fruitvale, Round Mountain, Kern Front	Mountain View	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills, Belridge	Coalinga, Wheeler Ridge	Santa Paula, Shiells Canyon, South Mountain	Santa Maria, Orcutt	Ventura Ave.	Rincon	Kettleman Hills	Gravity
11–13																								11–13
14	$0.65			$0.65	$0.65			$0.65	$0.65	$0.65	$0.65	$0.65		$0.52	$0.57	$0.52	$0.57	$0.52	$0.57					14
15	.65			.63	.63			.63	.63	.63	.63	.63		.57	.57	.57	.57	.57	.57					15
16	.63			.61	.61			.61	.61	.61	.61	.61		.57	.57	.57	.57	.57	.57					16
17	.61			.58	.59			.59	.59	.59	.59	.60		.57	.57	.57	.57	.57	.57					17
18	.60			.55	.57			.58	.59	.57	.58	.59		.57	.57	.57	.57	.57	.57					18
19	.58			.52	.56			.57	.58	.56	.57	.58			.57	.57	.56	.56	.56					19
20	.57			.49	.55			.56	.57	.55	.56	.57			.57	.57	.56	.55	.56					20
21	.56			.46	.54			.55	.56	.54	.55	.56			.56	.56	.56	.54	.55					21
22	.55			.43	.53			.54	.55	.53	.54	.55	$0.57		.56	.56	.55	.53	.54		$0.48	$0.44		22
23	.54			.40	.52			.53	.54	.52	.53	.54	.56		.55	.55	.54	.52	.53		.47	.43		23
24	.53			.39	.51			.52	.53	.51	.52	.53	.55		.54	.55	.54	.52	.53		.46	.42		24
25	.51			.38	.50	$0.55		.51	.52	.50	.51	.52	.54		.53	.54	.53	.51	.52		.45	.41		25
26	.50			.37	.49	.54		.50	.51		.50	.51	.53		.52	.53	.52	.50	.51		.44	.40		26
27	.49			.36	.48	.53			.50			.50	.52		.51	.52	.51	.49			.43	.39		27
28	.48				.47	.52			.49			.49	.51		.50	.51	.50	.48			.42	.38		28
29	.47					.51			.48			.48	.50		.49	.50	.49	.47			.41	.37		29
30	.46					.50			.47			.47	.49		.48	.49	.48	.46			.40	.36		30
31	.44					.48			.46			.46	.48		.47	.48	.47							31
32	.43					.46						.45	.47		.46	.47	.46							32
33						.45						.44	.46		.45	.46							$0.62	33
34						.44						.43	.45		.44	.45							.61	34
35													.44		.43	.44							.60	35
36													.43		.42	.43							.59	36
37													.42		.41	.42							.58	37
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Gravity	11–13																							Gravity

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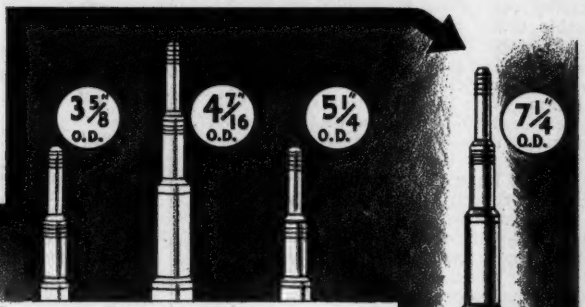

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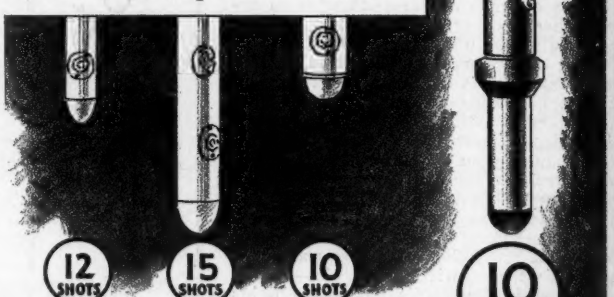

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